Norman Triplett's Problem Child: A Review of *Social Facilitation* by B. Guerin

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A beginning student of social psychology need not read past the first chapter of most texts to learn that the first experimental study in social psychology was reported in 1898 by Norman Triplett. Triplett compared the performances of children working alone on a simple motor task with their performances while competing in pairs and found that the performances during competition were superior. The effects of the presence of others on individual performance have come to be called "social facilitation," and Bernard Guerin's recent book on the subject will reward its readers with an excellent critical review of research and theory on this deceptively simple phenomenon. The book makes a solid contribution to both social psychology and behavior analysis, fields that have historically had few points of contact.

The basic phenomenon of social facilitation is easy to describe, but of the more than 35 theories proposed to account for the phenomenon and reviewed by Guerin, none provides a clearly superior explanation. Social facilitation is the name given to the effect on individual task performance of an interaction between two variables—the presence of others, and task difficulty. The levels of these variables are usually referred to as present versus alone and simple versus complex, respectively. Compared to task performance alone, the performance of simple or well-learned tasks seems to be en-

hanced by the presence of others, and the performance of complex or poorly learned tasks is impaired by the presence of others. "Presence of others" can mean another person's simple physical presence without observation, passive observation, activity on the same task ("coaction") or a different task, or actual or implicit evaluation of the subject's performance. Subjects are not instructed to compete, cooperate, or otherwise interact with the other person. Although Guerin does discuss studies involving competition, cooperation, and cueing, he excludes them from the set of studies used to evaluate the adequacy of competing theories, although this ironically excludes Triplett's germinal study.

Guerin's presentation can be roughly divided into four sections: (a) a review of the early research and theory that defined the field, (b) a critical review of three families of contemporary theories, (c) a comprehensive review of experiments with humans and nonhumans, and (d) a critical summary and a proposal intended to lift us from the doldrums of repeated cycles of experiments that are inadequate to advance the field. The book is written for the general reader with some background in psychology but no special preparation in behavior analysis.

Guerin begins with a history of early research, typically flawed, and early attempts at a comprehensive theory. One recurrent methodological problem makes its first appearance in this introductory section: The experimenter is often present when the subject is in the alone condition. It is an embarrassingly myopic view of the experimental process that could lead an experimenter to think that a subject is performing a task alone when an observing experimenter is present. In Guerin's later comprehensive review of the research on humans, however, it can

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be seen that 92 of the 313 studies considered are flawed in this way.

One of the strengths of Guerin's approach throughout the book is that his discussion of the specific is embedded in a context of the general. Thus, the reader can consider social facilitation both as an independent subject and as a case study in the characteristics of psychology in general. In the introductory section, for example, the general reciprocal relation of experimental method and theoretical thinking is illuminated by specific examples from social facilitation research. Early studies in the field employed a method that compared performance on a task alone or in the presence of others doing the same task, but included no passive audiences. This methodological convention generated theories that attributed improved performance to the subject's ability to witness the actions of others (Allport, 1924; Féré, 1887 [cited in Guerin, 1993]; Triplett, 1898). When later studies found effects in the presence of passive audiences, theories were revised and constructs such as distraction and self-presentation were added to the theoretical battery (Pessin & Husband, 1933).

The overall plan of Guerin's book also reflects this interplay between theory and research. He attempts to separate the reviews of theory and research into two different sections, but here he is only partly successful: The section on theory contains nearly all of the graphs of experimental data that appear in the book; the section on experimental research is divided into thirds by theoretical perspective.

The second section of the book presents a critical review of three families of theories that bear on the phenomenon of social facilitation. At least 35 theories are named in this review, including several that were not originally inspired by social facilitation studies but that do generalize to those settings. Guerin's assertion that "social facilitation has been taken on by all the frameworks adopted by social psychology" (p. 100), however, probably overstates the case. Cognitive consistency theories such as the theory of cognitive

dissonance, social exchange and equity theories, and attribution theories come to mind as examples of influential theories that were not cited by Guerin and have had little or nothing to say about social facilitation. Guerin clearly explains the logic that extends each theory to the phenomenon of interest and reflects on the adequacy of the theory in light of the evidence.

The three families of theories are drive theories, social conformity theories, and cognitive process theories. In general, drive theories attribute the effects of the presence of others to increased arousal or attention, social conformity theories attribute the effects to behaviors that conform to learned social standards, and cognitive process theories attribute social facilitation to enhancements or disruptions in information processing.

It is in this section that Guerin introduces a noteworthy theme of the book. The problem with most contemporary theories of social facilitation is that their explanatory powers rest on intervening mechanisms that are invoked to connect observed stimuli to observed dependent behavior, but the presence of these mechanisms is not confirmed by means other than observation of the dependent variable. This conceptual problem is familiar to behaviorists, and was addressed by Skinner (1950) more than 40 years ago in an article that could be retitled "Are Theories of Social Facilitation Necessary?" for present purposes. Guerin observes that the lack of independent verification of explanatory mechanisms means that "a good many of the theories cannot be empirically distinguished from one another" (p. 188); they all are equally consistent with the observed evidence and differ mainly in the way in which they talk about what might go on inside the organism. Constructs such as innate arousal, learned arousal, monitoring, self-evaluation, social comparison, fear, comparison with an ideal performance, distraction, and the like are postulated but not measured independently of the performance changes they are supposed to cause. In the end, Guerin's choice of the most accurate theories is based only

on parsimony, usefulness, and plausibility.

Of particular interest to readers of *The Behavior Analyst* will be Guerin's treatment of behavior analysis as a theoretical approach. Behavior analysis is grouped with the social conformity theories, because the presence of others is seen as a discriminative stimulus for the modification of task performance in ways that have been reinforced in the past. In the case of nonhuman subjects, it can be shown that behaviors such as eating increase in the presence of conspecifics; this is to be expected from a history in which the presence of conspecifics is often accompanied by the presence of the food that the species eats. The presence of conspecifics becomes a discriminative stimulus for eating, especially, but not only, if those conspecifics are also eating.

For humans, Guerin reasons that the presence of others is a discriminative stimulus for altering rates of behavior depending on prior consequences in that setting, including following the instructions of others, following self-instructions, and altering the frequency of behaviors that compete with these instructions. This approach predicts that the presence of others can occasion either enhanced or impaired performance, depending on the individual's consequence history. On occasions in which most people experience common consequences, a reliable pattern of performance change should be observed.

It is not obvious from this analysis why the presence of others should commonly impair performance on complex tasks and enhance performance on simple tasks. Guerin follows the suggestion of Berger et al. (1981) in this regard: When one is presented with a task, one engages in many mediating strategies, including some that are not socially acceptable, such as talking to oneself, gesturing, counting on fingers, and rehearsing out loud. Eliminating these mediators in the presence of others should especially impair the performance of complex tasks. But why should the elimination of mediators improve the performance of simple tasks? The argument is presented that, with

simple tasks, the use of many mediators actually inhibits good performance, so if the presence of others reduces the number of mediators, performance will improve. Thus, the observed interaction between presence of others and task difficulty is produced by the reduction of mediators that would have helped on a complex task and interfered with a simple task.

Readers with a behavioral background will also appreciate a research limitation described by Guerin in the course of this review. Suppose an experimenter presents subjects with a simple problem and notes that performance is better when others are present. Lacking baseline measurements, experimenters cannot judge whether the presence of others has enhanced performance or the absence of others has impaired performance, or both. These differences have considerable theoretical implications.

When reading Guerin's exposition of each theory, the reader will be impressed with the clear and orderly nature of the explanation. When the fine points of the theories are later compared with each other, the reader will be impressed with how completely they have forgotten the details of the theories. It might have been helpful to include a summary table as an aid to memory.

Guerin does select three theoretical approaches that are more acceptable than the others, but he does not do so until he has presented a complete review of the experimental literature. Guerin's excellent review of social facilitation in nonhuman animals is the most comprehensive discussion of its kind and includes studies of everything from rhesus monkeys to centipedes (which move down a runway more slowly alone than when in the presence of onlooking centipedes). Although the thought of a centipede audience is delightful, it does illustrate one of the limitations of animal studies: One can get animals to be coactors or observers of other animals, but they are not often passive in the presence of another animal in the same way a human confederate can be told to be in the same room with a performing subject but to

ignore him or her. Studies of the "mere presence" of others form an important part of the literature on humans but are lacking in studies of nonhumans.

Guerin asserts that the presence of social facilitation effects in nonhumans reduces the plausibility of some theories. For example, the control systems model, a social conformity theory, proposes that behaviors compare their performance to an internal standard, and this process is enhanced by the presence of others. One example of social facilitation in animals is that satiated animals will eat more in groups than when they are alone. Guerin comments that it "seems doubtful" that "chickens have behaviour standards for eating and have periodic self-attentive checks" (p. 74).

Guerin's skepticism may not be matched by contemporary workers in the field of animal cognition, for some of whom "the behaviorist period of strict avoidance of the attribution of mental life appears at best a long fallow period, and at worst an anomalous dark age that has finally been set right by the cognitive revolution" (Timberlake, 1993, p. 696). From this perspective, human-like behavior in animals may be taken as evidence of the presence of mentalism in animals. This reverses the tendency of behaviorists to point to animal-like behavior in humans as evidence of the absence of mentalism in humans.

The review of experiments with humans follows the tactics presented in an earlier publication (Guerin, 1986). An initial selection of 313 studies of social facilitation in humans is reduced to 91 studies not flawed by methodological errors (e.g., having the experimenter present in the alone condition) or conceptual shortcomings (e.g., giving the subjects instructions to compete with each other). These 91 studies are divided into those that demonstrate (a) the effects of the mere presence of others, (b) the effects of the presence of a passive experimenter, (c) the effects of passive observation by others, and (d) the effects of the presence of others through mechanical means such as one-way mirrors, videotape recording, or computers. Guerin's is the first pub-

lished review of this latter group of studies.

Finally, Guerin's review of the literature includes an interesting and inventive chapter on related areas of psychology. In these studies, social facilitation is a key phenomenon, although the experimenter may not have applied that label. Guerin includes studies of test anxiety, stage fright, deindividuation, conformity, social loafing, social comparison, competition, implicit audience effects, and computer communication in this review. Broadening the focus in this way results from Guerin's emphasis on the functional, instead of structural, aspects of social facilitation.

In his summary discussion, Guerin emphasizes that social facilitation is a property of settings, not behavior or behaviors, and proposes that responses to the social facilitation setting can be reduced to two reliable aspects: increases in alertness (see also Guerin & Innes, 1982) and increases in conformity behavior that matches some learned social standard, both occasioned by the presence of another person. Three theories are chosen as the most adequate (or perhaps the least inadequate): (a) the control systems model, which posits matching behavior to an ideal; (b) behavior analysis; and (c) cognitive models that attribute social facilitation effects to changes in the attentional stage of information processing and priming known schemas. Both the control systems model and the cognitive model lack a motivational component, which behavior analysis handles through consequence history.

Guerin concludes that advances in this field will not be made by repeated demonstrations of performance changes and inventing more elaborate intervening mechanisms. We need to know more about the baseline behavior and performance histories of our subjects so that we can judge the nature of the changes we observe. We need to know more about the effects of social facilitation on responses other than task performance so that we can judge whether there is any evidence for the intervening mechanisms that already populate social facilitation

theories. We need to consider "a few larger frameworks of group and social processes" (p. 191) instead of studies of isolated phenomena. Guerin's thorough evaluation of the field and realistic suggestions for advancement set the stage for real progress as social facilitation research and theory enter their second century.

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